

L.C.I.D. PERMIT APPLICATION

FOR

PHASE 1A

D & D GRADING, INC.

1411 RANKIN MILL ROAD

McLEANSVILLE, NORTH CAROLINA 27301

PHONE (336) 621-4021

CONTACT: DAVID DICK

**PREPARED BY
EVANS ENGINEERING, INC.**

**4609 DUNDAS DRIVE
GREENSBORO, NORTH CAROLINA 27407**

PHONE (336) 854-8877

FAX (336) 854-8876

CONTACT: ANTHONY LESTER

NOVEMBER 18, 2009

**NC DEPT. OF ENVIRONMENT
AND NATURAL RESOURCES
RECEIVED**

NOV 24 2009

**MOORESVILLE REGIONAL OFFICE
DIVISION OF WASTE MANAGEMENT, SWS**

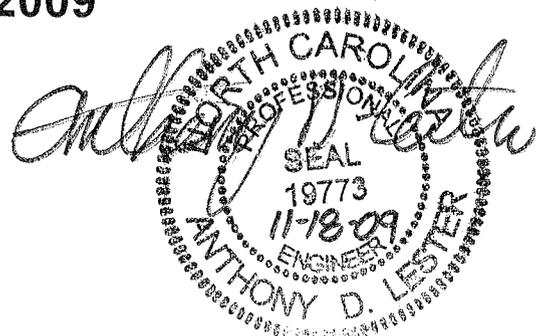
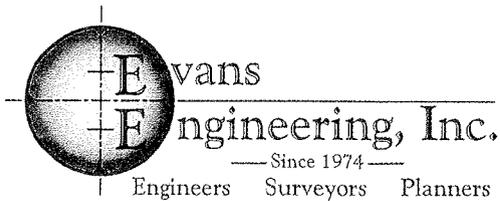


TABLE OF CONTENTS

- Section A - Letter to N.C.D.E.N.R. requesting permit
- Section B - Vicinity maps
- Section C - Siting criteria for L.C.I.D.
- Section D - Operations plan for L.C.I.D.
- Section E - Approval letter from County, Grading Permit and miscellaneous letters
- Section F - Deed and legal description
- Section G - Subsurface exploration and well analysis

SECTION A

LETTER TO N.C.D.E.N.R. REQUESTING PERMIT



November 18, 2009

Mr. John Murray
Mooresville Regional Office
Solid Waste Section
N.C.D.E.N.R.
610 E. Center Avenue
Mooresville, North Carolina 28115

Re: D & D Grading, Inc. - Phase 1 A - L.C.I.D. Landfill in Guilford County

Dear John:

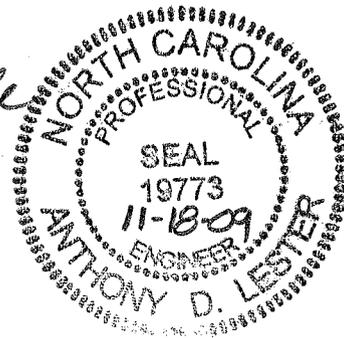
On behalf of D & D Grading, Inc. please except this request for a "Land Clearing and Inert Debris" Landfill Permit. We have compiled a package following the "Division of Waste Management Rules, 15 A NCAC 13B Section .0563-0566 for your review. We have all Guilford County approvals and are ready for state approval.

Please review this package and should you have any questions or comments contact me.

Sincerely,



Anthony Lester
EVANS ENGINEERING, INC.

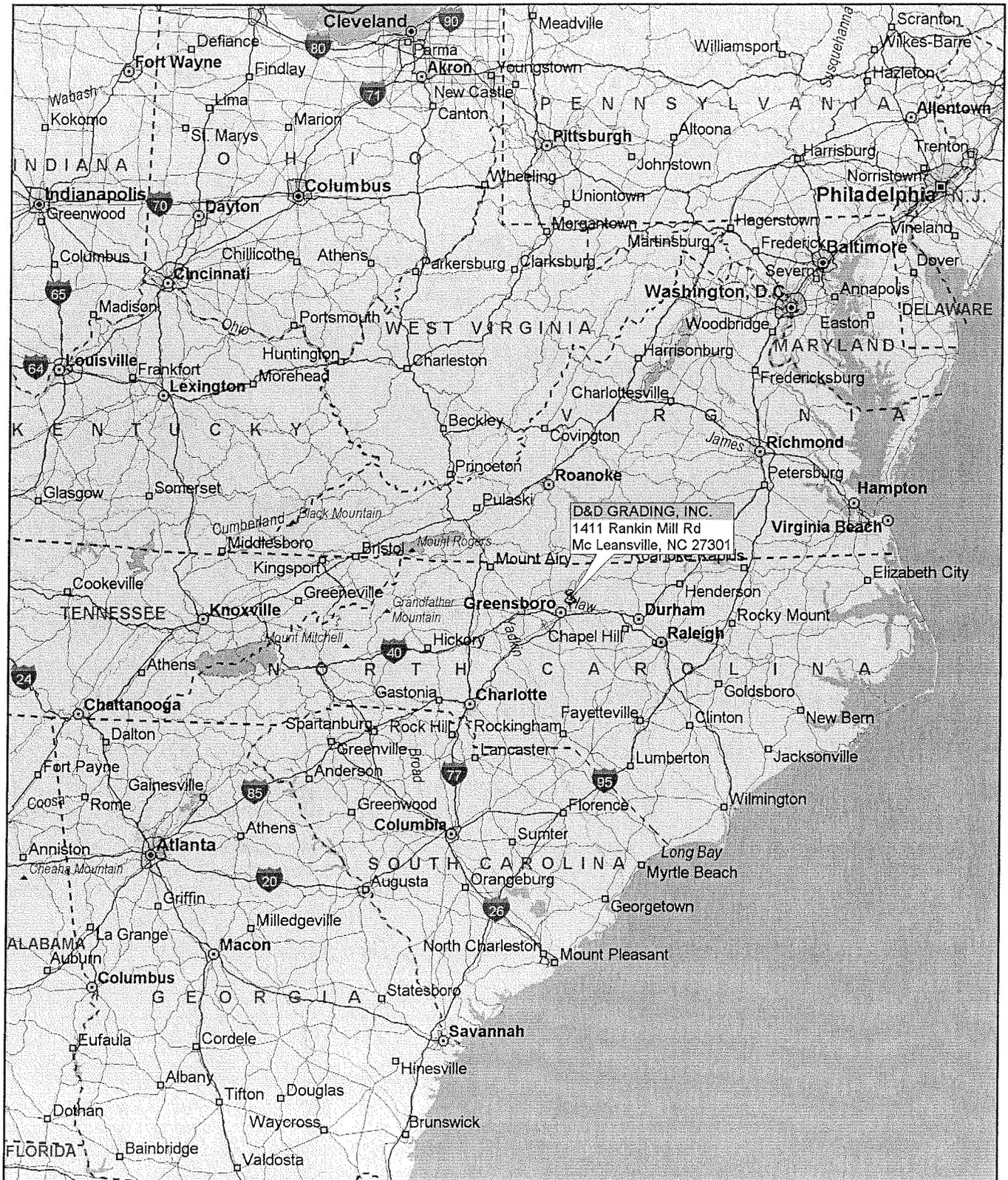


SECTION B

VICINITY MAPS

STATE WIDE MAP

D&D GRADING, INC.

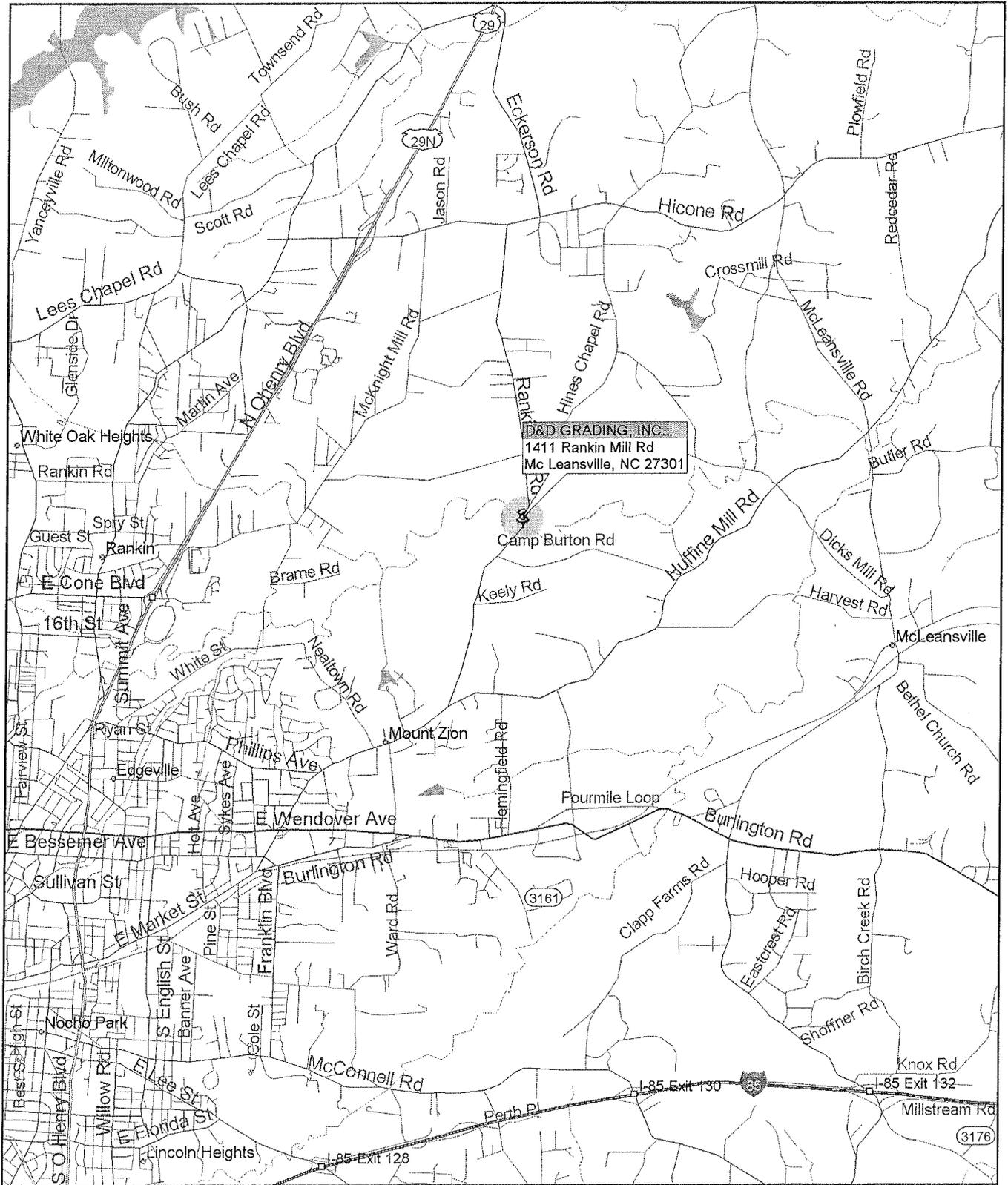


D&D GRADING, INC.
1411 Rankin Mill Rd
Mc Leansville, NC 27301

Microsoft Expedia
Streets98

VICINITY MAP

D&D GRADING, INC.



D&D GRADING, INC.
1411 Rankin Mill Rd
Mc Leansville, NC 27301

0 mi 0.5 1 1.5 2 2.5

Microsoft Expedia
Streets98

SECTION C

SITING CRITERIA

SITING CRITERIA FOR L.C.I.D.

1. The L.C.I.D. Landfill area is not located in the 100-year flood plain as shown on Flood Insurance Rate Maps community panel number 3701111 126-C (see site plan for location of 100-year flood plain) (100-year flood line is field located).
2. This facility does not cause or contribute to the taking of any endangered or threatened species of plants, fish or wildlife (see letter-Section E).
3. This facility does not result in the destruction or adverse modification of the critical habitat of endangered or threatened species (see letter-Section E).
4. This facility does not damage or destroy an archaeological or historical site (see letter-Section E).
5. This facility does not cause adverse impact on a state park, recreation or scenic area or any other lands included in the state nature and historic preserve (see letter-Section E).
6. The L.C.I.D. area is not located in any wetland as defined in the Clean Water Act, Section 404-b. Wetlands jurisdiction are from top-of-bank to top-of-bank defined by the Army Corps of Engineers (see map for location of wetlands).
7. Suitable soils available for cover are from onsite stockpile of topsoil, if this quantity should not be adequate then suitable soils will be brought in from offsite (see Final Grading and Erosion Control Plan for Volume).
8.
 - a) The facility does not cause a discharge of pollutants into waters of the state.
 - b) This facility does not cause discharge of dredged materials or fill material into waters of the state.
 - c) This facility does not cause non-point source pollution of waters of the state.
 - d) Waste will be placed a minimum of four feet above the seasonal high water table.
9. The facility meets all of the minimum buffer requirements as defined by the state and county (see Final Grading and Erosion Control Plan for buffer lines).
10. The facility meets all requirements of any zoning ordinance (see letter-Section E).

SECTION D

OPERATIONS PLAN FOR L.C.I.D.

OPERATIONS PLAN FOR L.C.I.D.

OPERATOR: D & D GRADING, INC.
1477 RANKIN MILL ROAD
McLEANSVILLE, NORTH CAROLINA 27301
PHONE : (336) 621-4021
DAVID DICK

Projected Use After Completion: Open field of grass

SYSTEMATIC USAGE OF DISPOSAL AREA:

1. This a private facility, no dumping allowed without owner's permission.
2. Vehicles enter thru front gate (gate is locked at the end of the day) and check-in at office. Any Non-L.C.I.D. material is refused and vehicle is instructed to leave. Vehicles with L.C.I.D. waste are instructed where to go to dump then proceed back thru front gate to leave.
3. Operator sits on a dozer and continually pushes waste around to fill voids and compact waste.
4. Adequate dirt is incoming with L.C.I.D. waste to help fill voids. If any additional dirt is required it is excavated from elsewhere on site or taken from this site. Haul roads into and out of disposal areas are constantly maintained with equipment and materials from onsite. Traffic flow patterns and dump areas are clearly defined by means of signs, fences and other visual points.
5. When an area has reached it's capacity, it will then be covered with a minimum of two feet of topsoil then seeded and closed.

WASTE STREAM:

1. The waste stream is primarily generated through owner's own business. Owner operates a grading company and waste is generated through this.
2. Waste excepted consists of; yard waste, brush, uncontaminated soil, stumps, concrete, leaves, brick, untreated wood and limbs resulting from landscape and land clearing activities. On an average the incoming waste stream is estimated at \pm 326 CY/week or 163 tons/week.

EMERGENCY PLAN:

1. Fire District #13 Fire Department is located down the street from this site and provides fire protection for D & D Grading, Inc. (see letter - Section E).
2. All structures are inspected periodically by fire department for compliance.
3. In the event of a fire after hours, there is an emergency number on the front entrance sign to contact to unlock the front gate and assist.

SECTION E

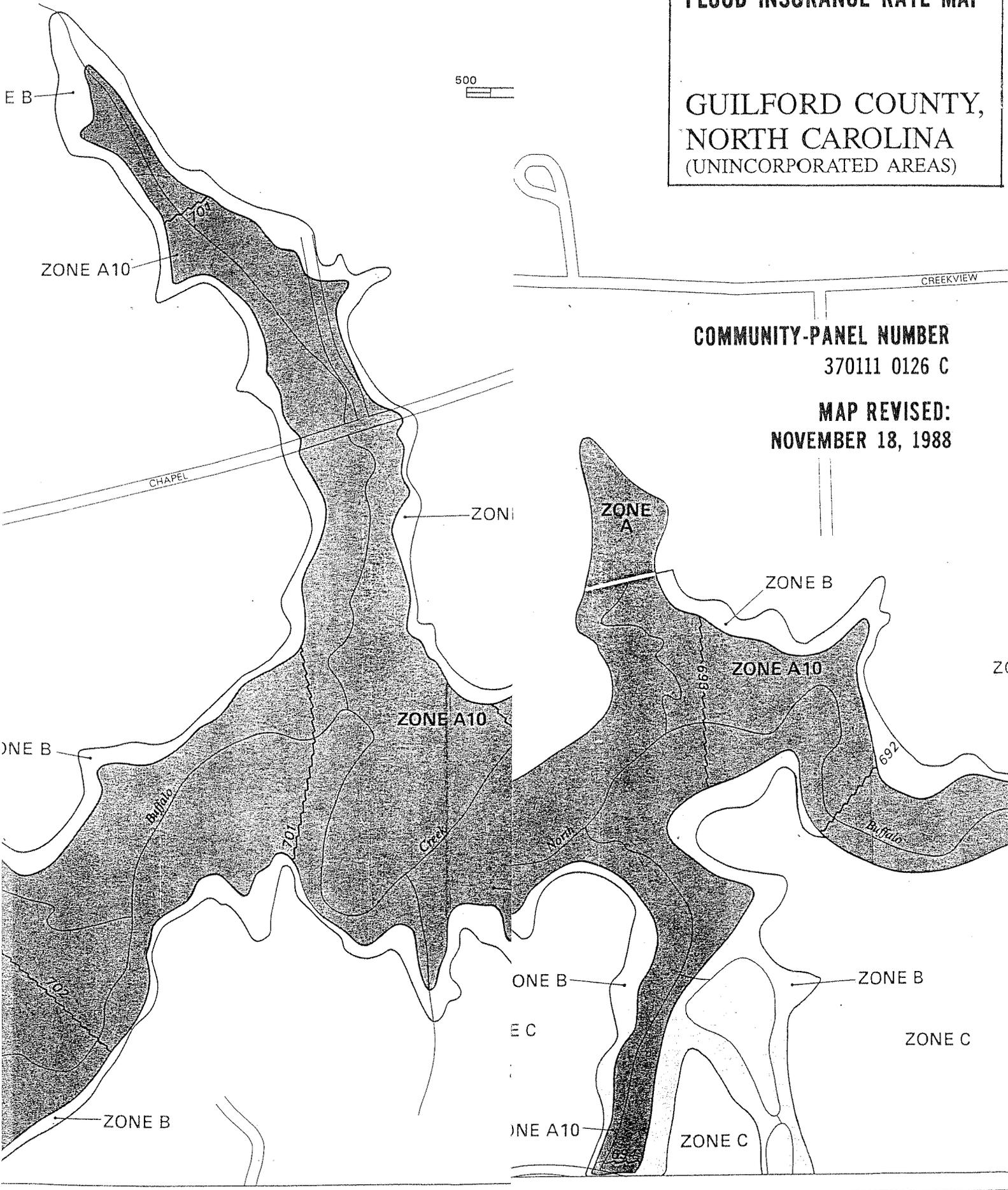
**APPROVAL LETTER FROM COUNTY
AND MISCELLANEOUS LETTERS**

FIRM

FLOOD INSURANCE RATE MAP

**GUILFORD COUNTY,
NORTH CAROLINA
(UNINCORPORATED AREAS)**

500

COMMUNITY-PANEL NUMBER

370111 0126 C

MAP REVISED:

NOVEMBER 18, 1988



**GUILFORD COUNTY
PLANNING AND DEVELOPMENT DEPARTMENT**

MEMORANDUM

TO: Dave Southard, Evans Engineering

FROM: Mark E. Kirstner, AICP *MEK*
Chief, Planning and Zoning Sections

DATE: November 27, 2000

SUBJECT: LCID LANDFILL ZONING CONSISTANCY DETERMINATION

The property located at 1409 Rankin Mill Road owned by D&D Grading is zoned AG and has been reviewed by our department for approval of Land Clearing and Inert Debris Landfill. On March 22, 1995 the Guilford County Planning Board authorized issuance of a Special Use Permit subject to insuring that fill is placed no closer than 100 feet from property boundaries and approval of a site plan. On the September 12, 2000 the Technical Review Committee gave Conditional Approval to the site subject to issuance of a State Permit and locating the 100-yr. flood elevation. No other public hearings or meetings are required.

Substantial progress has been made to comply with all these items and other provisions of the Guilford County Development Ordinance. Once these items have been addressed Guilford County should be able will issue a Land Use and Special Use Permit.

Please call me at 412-6378 if you have any questions.

cc: Case Files

50th ANNIVERSARY

1949 - 1999

FIRE DISTRICT #13, INC.

2505 Lee's Chapel Rd.
Greensboro, NC 27405

Bus. 336-375-5507
FAX 336-375-5521

November 17, 2000

Mr. Dave Southard
Evans Engineering
4609 Dundas Dr
Greensboro, NC 27407

Dear Mr. Southard,

In reference to your inquiry, the property located at 1411 Rankin Mill Road is located within the boundaries of Fire District #13, Inc. To our knowledge we have experienced no known problems with facilities located at this address. If we can be of further assistance please do not hesitate calling.

Sincerely,



Steve Neal
Chief



GUILFORD COUNTY
INSPECTIONS

DATE 06-11-2001
TIME 13:48:33
RECEIPT 0108162

JOB LOCATION 1409 RANKIN MILL RD

TW 07 MAP 04-0189-0 BLOCK 0437-00 LOT 010

PERMIT: 0124486

NAME D & D GRADING
ADDR 3625 PLEASANT GARDEN RD
CITY/ST GREENSBORO, NC 27406

TYPE CHARGE	UNITS	AMOUNT
GRADING	2.40	46.30
TOTAL BUILDING PERMIT		46.30
BALANCE DUE		46.30

MAKE CHECK PAYABLE TO: GUILFORD COUNTY



Guilford County Erosion and Sedimentation Control Inspection Report

Guilford County Erosion Control Program, P. O. Box 3427, Greensboro North Carolina 27402
Phone: 336-641-3334, Fax: 336-641-6988

- 1 Project and Location: D & D LCID
- 2 Person Financially Responsible and Address: D & D Grading
3625 Pleasant Garden Rd. Greensboro, NC 27406 3 Permit #: H0124486GRAD
- 4 Pictures taken on this inspection? No
- 5 Weather and Soil Conditions: 60F Cloudy Workable Soil
- 6 Is the site in compliance with the ordinance? Yes
- 7 Is the site currently under Notice of Violation? No
- 8 Is the site being placed under Notice of violation per this inspection? No
- 9 Violations of applicable sections of *Chapter 7-4: Guilford County Development Ordinance: Soil Erosion and Sedimentation Control* or *Chapter 7-3: Oak Ridge Development Ordinance: Soil Erosion and Sedimentation Control*, (herein, "the Ordinances") and North Carolina rules and regulations are indicated below. An "X" or "✓" will be placed in the box in front of the violations existing on your site on this inspection date.

- a. No approved plan, §7-4.1 (A) or 7-3.1 (A) of the Ordinances and G.S. 113A-57(4) and 15A NCAC 4B.0107(e)
- b. Failure to follow approved plan, §7-4.12 (I) or 7-3.12 (I) of the Ordinances and G.S. 113A-61.1
- c. Failure to provide adequate groundcover, §7-4.3 (C) or 7-3.3 (C) of the Ordinances and G.S. 113A-57(3) and 15A NCAC 4B.0107(b) or 15A NCAC 4B.0124(e)
- d. Insufficient measures to retain sediment on site, §7-4.4 (A) or 7-3.4 (A) of the Ordinances and G.S. 113A-57(3)
- e. Failure to take all reasonable measures, §7-4.1 (B) or 7-3.1 (B) of the Ordinances and 15A NCAC 4B.0105
- f. Inadequate buffer zone, §7-4.3 (A) or 7-3.3 (A) of the Ordinances and G.S. 113A-57(1)
- g. Graded slopes and fills too steep, §7-4.3 (B) or 7-3.3 (B) of the Ordinances and G.S. 113A-57(2) or 15A NCAC 4B.0124 (d)
- h. Unprotected exposed slopes, §7-4.3 (B) or 7-3.3 (B) of the Ordinances and G.S. 113A-57(2)
- i. Failure to maintain erosion control measures, §7-4.9 or 7-3.9 of the Ordinances and 15A NCAC 4B.0113
- j. Other: _____

10a Has sedimentation damage occurred? _____
 If yes, where? Lake/natural watercourse on the tract, Lake/natural watercourse off the tract Other property

10b Has sedimentation occurred since last inspection?
 11 Degree of damage: Slight Moderate Severe Description: _____
 12 Contact made with: _____ Title: _____

13 Corrective actions needed:
Site is stable.

14 Comments:

Complete corrective actions by: _____
 Report by: Michael Carter 336-641-8403 Others present: _____

Date of Inspection: November 17, 2009 Time arriving at site: 1:00 PM Time leaving site: 1:15 PM
 Copies furnished: File

Inspection Report given or mailed or sent to Person Financially Responsible on: _____ by: Michael Carter
 Failure to complete the required maintenance/corrections as shown constitutes a violation of the Guilford County or other applicable Development Ordinances and may subject the property owner(s) and/or responsible parties to fines up to \$5,000.00 per day until the requirements have been met.

GUILFORD COUNTY, N.C.
Planning and Development Dept.
GRADING PERMIT

NOTICE

This Certifies that a grading permit has been issued.

Name of Project: D+D LCID.

Owned by: D+D Grading

Acreage to be graded: 2.4

Location: 1409 Rankin Mill Rd.

Date: 6-11-01

By: EARL Davis

Permit Number: 124486

Inspections Division

P.O. Box 3427

Greensboro, N.C. 27402

(336) 373-3334

**This notice must be
posted in a conspicuous
place on the job.**



NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES

DIVISION OF PARKS AND RECREATION

September 11, 2000

JAMES B. HUNT JR.
GOVERNOR

BILL HOLMAN
SECRETARY

DR. PHILIP K. MCKNELLY
DIRECTOR

Mr. David Southard
Evans Engineering, Inc.
4609 Dundas Drive
Greensboro, NC 27407

Subject: Land Clearing and Debris Permit for site in Greensboro

Dear Mr. Southard:

The Natural Heritage Program has no record of rare species, significant natural communities, or priority natural areas at the proposed site nor within two miles of the site.

You may wish to check the Natural Heritage Program database website at www.ncsparks.net/nhp/element.html for a listing of rare plants and animals and significant natural communities in the county. Please do not hesitate to contact me at 919-715-8687 if you have questions or need further information.

Sincerely,

Harry LeGrand, Zoologist
Natural Heritage Program

HEL/hel



1615 MAIL SERVICE CENTER, RALEIGH, NORTH CAROLINA 27699-1615
PHONE 919-733-4181 FAX 919-715-3085

AN EQUAL OPPORTUNITY / AFFIRMATIVE ACTION EMPLOYER - 50% RECYCLED/10% POST-CONSUMER PAPER



North Carolina Department of Cultural Resources
State Historic Preservation Office

David L. S. Brook, Administrator

James B. Hunt Jr., Governor
Betty Ray McCain, Secretary

Division of Archives and History
Jeffrey J. Crow, Director

September 28, 2000

Dave Southard
Evans Engineering, Inc.
P. O. Box 10285
Greensboro, NC 27404

Re: D & D Grading, Inc., Land Clearing and Inert Debris Landfill Permit,
1409 Rankin Mill Road, Greensboro, Guilford County, ER 01-7506

Dear Mr. Southard:

Thank you for your letter of September 2, 2000, concerning the above project.

We have conducted a review of the project and are aware of no properties of architectural, historic, or archaeological significance, which would be affected by the project. Therefore, we have no comment on the project as currently proposed.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, please contact Renee Gledhill-Earley, Environmental Review Coordinator, at 919/733-4763.

Sincerely,

David Brook
Deputy State Historic Preservation Officer

DB:kgc

	Location	Mailing Address	Telephone/Fax
ADMINISTRATION	507 N. Blount St., Raleigh NC	4617 Mail Service Center, Raleigh NC 27699-4617	(919) 733-4763 • 733-8653
ARCHAEOLOGY	421 N. Blount St., Raleigh NC	4619 Mail Service Center, Raleigh NC 27699-4619	(919) 733-7342 • 715-2671
RESTORATION	515 N. Blount St., Raleigh NC	4613 Mail Service Center, Raleigh NC 27699-4613	(919) 733-6547 • 715-4801
SURVEY & PLANNING	515 N. Blount St., Raleigh NC	4618 Mail Service Center, Raleigh NC 27699-4618	(919) 733-6545 • 715-4801

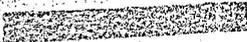
SECTION F

DEED AND LEGAL DESCRIPTION

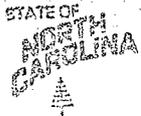
p/a Barbour

GUILFORD COUNTY

JUL 29 91



75.00 TRAN 7



Real Estate Excise Tax

Excise Tax 75.-

Recording Time, Book and Page

Tax Lot No. Parcel Identifier No. Verified by County on the day of 19 by

1/8 Mail after recording to This instrument was prepared by William G. Barbour Brief description for the Index

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 26 day of July, 19 91, by and between

GRANTOR

GRANTEE

Charles William Fagg and wife, Patsy Southern Fagg

David E. Dick 76 POB 2130 Greensboro, N.C. 27402

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.g. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of Jefferson Township, Guilford County, North Carolina and more particularly described as follows:

SEE ATTACHED.

North Carolina - Guilford County The certificate (s) of Margaret A. Payne

328455 RECORDED KATHERINE LEE PAYNE REGISTER OF DEEDS GUILFORD COUNTY, NC

07/29/91 1 DEEDS 528455 5.00

A Notary (Notaries) Public is (are) certified to be correct. This instrument and this certificate are duly registered at the date and time shown herein.

BOOK: 3872 PAGE(S): 1478 TO 1481

3 DEEDS 500H FAGG(S) 6.00 1 PROBATE FEE 1.00

KATHERINE LEE PAYNE REGISTER OF DEEDS Margaret A. Payne Attorney/Deputy Register of Deeds

07/29/1991 11:11:55

1 EXCISE TAX STAMP 75.00

Handwritten initials and numbers in a circle

3892-1478

001478

The property hereinabove described was acquired by Grantor by instrument recorded in Book 3057, Page 260

A map showing the above described property is recorded in Plat Book _____ page _____
TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated. Title to the property hereinabove described is subject to the following exceptions:

Easements, restrictions, rights-of-way of record and ad valorem taxes for the current year.

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

By: _____
President
ATTEST: _____
Secretary (Corporate Seal)

Charles William Fagg (SEAL)
Charles William Fagg
Patsy Southern Fagg (SEAL)
Patsy Southern Fagg

USE BLACK INK ONLY

SEAL-STAMP NORTH CAROLINA, _____ Guilford _____ County.

MARGARET A. MEISNER
NOTARY PUBLIC
GUILFORD COUNTY, NC
My Commission Expires 2-15-92

I, a Notary Public of the County and State aforesaid, certify that Charles William Fagg and Patsy Southern Fagg Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 26th day of July, 1991.

My commission expires: _____
Margaret A. Meisner Notary Public

SEAL-STAMP NORTH CAROLINA, _____ County.

I, a Notary Public of the County and State aforesaid, certify that _____ personally came before me this day and acknowledged that _____ he is _____ Secretary of _____ a North Carolina corporation, and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by its _____ President, sealed with its corporate seal and attested by _____ as its _____ Secretary. Witness my hand and official stamp or seal, this _____ day of _____, 19_____.

My commission expires: _____ Notary Public

The foregoing Certificate(s) of _____

is/are certified to be correct. This instrument and this certificate are duly registered at the date and time and in the Book and Page shown on the first page hereof.

REGISTER OF DEEDS FOR _____ COUNTY
By _____ Deputy Assistant - Register of Deeds

011479

3892-1479

BEGINNING at a stone, corner with Charlie Briggs; thence south 62 degrees 50 minutes east 347 feet to a point in the center of the public road; reference by an iron stake set in line 10 feet from the corner; thence north 51 degrees 50 minutes east with said road 221.4 feet to a point on the edge of the road; then still with said road north 44 degrees 08 minutes east 755.3 feet to a point on the edge of the road; thence still with said road north 52 degrees 02 minutes east 310.8 feet to a point on the edge of the road; thence still with said road north 23 degrees 03 minutes east 202.4 feet to a nail in the middle of a bridge across North Buffalo Creek; thence with said creek north 66 degrees 40 minutes west 300 feet to a stake on the bank of the creek; thence still with said creek north 27 degrees 12 minutes west 252.9 feet to a stake on the bank of the creek; thence still with said creek north 47 degrees 41 minutes west 147.3 feet to a stake on the bank of the creek; thence still with said creek north 17 degrees 28 minutes west 339.5 feet to a stake on the bank of the creek; thence still with said creek north 18 degrees 18 minutes west 241.2 feet to a stake on the bank of the creek; thence still with said creek north 83 degrees 40 minutes west 548.6 feet to a stake on the bank of the creek, corner with Charlie Briggs; thence leaving the creek and running south 02 degrees 50 minutes west 1963.6 feet to a stone, the point of BEGINNING, containing 39.5 acres, more or less. See Deed Book 3057, Page 260.

SAVE AND EXCEPT:

1. That certain tract described in Book 2011 Page 581 and therein described as follows:

BEGINNING at a cross in the center of the bridge across North Buffalo Creek, which said cross is also in the center line of Rankin Mill Road (sometimes referred to as Doggett-Mill Road and also as Huffine Mill Road) at the common corner between the property of W. J. Fagg; Rosa H. Goodman, and V. H. Carter; and running thence with the center line of North Buffalo Creek North 78 degrees 1 minute West, 218.89 feet to a point, a new corner with W. J. Fagg, thence a new line with W. J. Fagg South 41 degrees 5 minutes West, 332.85 feet to an iron pipe, another new corner with W. J. Fagg; thence another new line with W. J. Fagg South 43 degrees 18 minutes East, 220 feet to a point in the center line of Rankin Mill Road (this line passes over an iron stake 30 feet from its terminus;) thence along the center line of Rankin Mill Road North 45 degrees 42 minutes East, 247.79 feet to a point; thence continuing along the center line of said road North 27 degrees East, 202.91 feet to the point of BEGINNING.

00490

3892-1480

2. That certain parcel as shown in Plat Book 52, Page 31
and known as:

1.019 acres more or less of the Property of Billy Ray
Ward and wife, JoAnn Ward according to the plat thereof
recorded in Plat Book 52, Page 31 in the Office of the
Register of Deeds of Guilford County, North Carolina.

See Deed Book 2561, Page 555; Deed Book 2501, Page 415;
and Deed Book 2492, Page 195.

389Z-14B1

SECTION G

SUBSURFACE EXPLORATION AND WELL ANALYSIS

JANUARY 15, 2001

EVANS ENGINEERING, INC.
GREENSBORO, NORTH CAROLINA

PREPARED FOR:

ECS PROJECT NUMBER G-4422

1409 RANKIN MILL ROAD
GREENSBORO, GUILFORD COUNTY, NORTH CAROLINA

REPORT OF HYDROGEOLOGIC ASSESSMENT
LAND CLEARING AND INERT DEBRIS LANDFILL





ENGINEERING CONSULTING SERVICES, LTD.
 Geotechnical • Construction Materials • Environmental

January 15, 2001

Mr. Dave Southard
 Evans Engineering, Inc.
 4609 Dundas Drive
 Greensboro, North Carolina 27407

Reference: Report of Hydrogeologic Assessment
 Land Clearing and Inert Debris (LCID) Landfill
 D&D Grading Facility
 1409 Rankin Mill Road
 Greensboro, North Carolina
 ECS Project No. G-4422

Dear Mr. Southard:

Engineering Consulting Services, Ltd. (ECS) is pleased to provide you with the report of hydrogeologic assessment for the subject site located in Greensboro, North Carolina. The purpose of this assessment was to provide information pertaining to groundwater conditions at the site.

We appreciate the opportunity to work with you on this project. If you have any questions or require any further information, please feel free to contact us at (336) 856-7150.

Sincerely,

ENGINEERING CONSULTING SERVICES, LTD.

John S. Lair
 Project Geologist

J. Scott Pearce, RSM
 Senior Geologist

Douglas O. Bell, P.E.
 Principal Engineer
 License NC #19670



6909 International Drive, Suite 103 • Greensboro, NC 27409 • (336) 856-7150 • Fax (336) 856-7160

Offices: Aberdeen, MD • Atlanta, GA • Austin, TX • Baltimore, MD • Chantilly, VA • Charlotte, NC • Chicago, IL • Frederick, MD • Fredericksburg, VA
 • Greensboro, NC • Greenville, SC • Norfolk, VA • Raleigh, NC • Richmond, VA • Roanoke, VA • Williamsburg, VA • Wilmington, NC

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
2.0	HYDROGEOLOGIC EVALUATION.....	1
2.1	General Site Conditions	1
2.2	Site Geologic and Hydrogeologic Conditions.....	1
2.3	Groundwater Levels and Flow Direction.....	2
3.0	REFERENCES	2

FIGURES

- Figure 1 - Site Location Map
- Figure 2 - Site Plan Showing Piezometer Locations
- Figure 3 - Potentiometric Map

TABLES

- Table 1 - Piezometer Construction Data
- Table 2 - Depth to Partially Weathered Rock
- Table 3 - Groundwater Levels in Piezometers

APPENDICES

- Appendix A - Field Methods
- Appendix B - Soil Boring Logs and Piezometer Construction Diagrams

1.0 INTRODUCTION

The 33.58 acre site is located at 1409 Rankin Mill Road in Greensboro, Guilford County, North Carolina (Figure 1). Currently, the site is used by D & D Grading (D & D) for their grading business. Mr. David Dick, the property owner, would like to operate and permit approximately 7 acres of the site for a LCID landfill. The purpose of this investigation was to obtain hydrogeologic and subsurface soil conditions at the site. The information will be used for the proposed LCID landfill at the site.

2.0 HYDROGEOLOGIC EVALUATION

2.1 General Site Conditions

The site is currently used by D & D for their grading business. The site ranges in elevation from a low of approximately 680 feet above average mean sea level in the northern and eastern portions of the site in the vicinity of Buffalo Creek to a high of approximately 740 feet above average mean sea level in the southwestern portion of the site.

According to the Geologic Map of North Carolina, the site is located in the Carolina Slate Belt of the Piedmont physiographic province. The soils encountered in this area are the residual product of in-place chemical weathering of rock presently underlying the site. In general, shallow unconfined groundwater movement within the overlying soils is controlled largely by topographic gradients. Recharge occurs primarily by infiltration along higher elevations and typically discharges into streams or other surface water bodies. The elevation of the shallow water table is transient and can vary greatly with seasonal fluctuations in precipitation. Movement in this water table is generally from higher to lower elevations. As such, shallow groundwater would be expected to flow northeast to east across the site towards Buffalo Creek.

2.2 Site Geologic and Hydrogeologic Conditions

A subsurface investigation was performed on September 26, 2000. Six borings and six piezometers (P-1 through P-6, Figure 2) were installed on-site. A summary of the methods utilized for the advancement of the soil borings and the installation of the piezometers is included in Appendix A. The piezometer and construction details are summarized on Table 1.

The subsurface soils encountered in the borings drilled for the piezometers varied from location to location and primarily consisted of orange green and brown soft to very stiff fine sandy silts in the upper layers to a depth of 20 feet below the ground surface (bgs) with underlying material consisting of saprolite or partially weathered rock (PWR). PWR was sampled predominantly as tan white brown silty coarse to fine sand. The soil boring logs and piezometer construction diagrams are included in Appendix B.

Depths to PWR varied from a depth of 3.5 feet bgs in piezometer borings P-1 through P-3 to a depth of 13.5 feet bgs from piezometer boring P-6. Rock (auger refusal) was encountered in piezometer boring P-1 at 11.2 feet bgs, in boring P-2 at 8.9 feet bgs and in boring P-3 at 9.0 feet bgs. A summary of the depth to PWR and competent bedrock from each boring is included in Table 2.

2.3 Groundwater Levels and Flow Direction

Piezometers were installed in September 2000 and provide subsurface data for the site. Water levels in the piezometers were measured at time of boring, 24 hours after completion and 7 days after completion. The water levels were measured from the top of casing. The groundwater level measurements are summarized on Table 3 and were used for the preparation of a potentiometric map for the site (Figure 3). Based on the water level measurements collected, groundwater was determined to be flowing north to northeast across the site towards Buffalo Creek.

3.0 REFERENCES

Brown, P.M., III, Burt, E.R., III, Carpenter, P.A., III, Enos, R.M., Flynt, B.J., Jr., Gallagher, P.E., Hoffman, C.W., Merschat, C.E., Wilson, W.F., 1985, *Geologic Map of North Carolina*, North Carolina Geological Survey, Scale 1:500,000, 1 sheet.

Driscoll, Fletcher G., Ph. D., 1986, *Groundwater and Wells*, Second Edition, pp.66-68.

North Carolina Administrative Code, December 1, 1992, Title 15 A, Subchapter 2C, Section .0100, *Well Construction Standards, Criteria and Standards Applicable to Water Supply and Certain Other Wells*.

FIGURES



REFERENCE:
 USGS TOPOGRAPHIC MAP
 MC LEANSVILLE, NC QUADRANGLE
 DATED 1952, PHOTOREVISED 1968

SCALE: 1" = 2,000'



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FIGURE 1
 SITE LOCATION MAP
 1409 RANKIN MILL ROAD
 GREENSBORO, NORTH CAROLINA

ECS PROJECT G-4422

TABLES

TABLE 1
PIEZOMETER CONSTRUCTION DATA
D&D Grading Facility
1409 Rankin Mill Road
Greensboro, North Carolina
ECS Project G-4422

Piezometer/ Well ID	Date Constructed	Casing Interval¹	Screen Interval
P-1	9-26-00	0-6.2	6.2-11.2
P-2	9-26-00	0-3.9	3.9-8.9
P-3	9-26-00	0-4.0	4.0-9.0
P-4	9-26-00	0-10.0	10.0-20.0
P-5	9-26-00	0-5.0	5.0-10.0
P-6	9-26-00	0-4.6	4.6-14.6

Notes:

P = Piezometer

All measurements are in feet below ground surface

N/A = Not applicable

¹ = Casing interval does not include length of pipe above ground surface

TABLE 2
DEPTH TO PARTIALLY WEATHERED ROCK
D&D Grading Facility
1409 Rankin Mill Road
Greensboro, North Carolina
ECS Project G-4422

Piezometer/Well Identification	Depth to Partially Weathered Rock (feet below ground surface)	Depth to Auger Refusal (feet below ground surface)
P-1	3.5	11.2
P-2	3.5	8.9
P-3	3.5	9.0
P-4	Not Encountered	Not Encountered
P-5	Not Encountered	Not Encountered
P-6	14.6	Not Encountered

Notes:

P = Piezometer

All measurements are in feet

TABLE 3
GROUNDWATER LEVELS IN PIEZOMETERS
D&D Grading Facility
1409 Rankin Mill Road
Greensboro, North Carolina
ECS Project G-4422

Piezometer/ Well ID	Referenced TOC Elevation	Water Level/ Elevation at Time of Boring (TOC)	Water Level/ Elevation at 24 Hours (TOC)	Water Level/ Elevation at 7 Days (TOC)
P-1	721.42	Dry	5.19/716.23	4.97/716.45
P-2	706.77	Dry	2.33/704.44	4.27/702.50
P-3	700.76	9.61/691.15	4.43/696.33	6.24/694.52
P-4	697.28	12.15/685.13	3.43/693.85	6.16/691.12
P-5	696.00	8.49/687.51	5.72/690.28	7.65/688.35
P-6	715.81	6.45/709.36	3.07/712.74	4.08/711.73

Notes:

P = Piezometer

All measurements are in feet

TOC = Top of Casing

Referenced elevations measured by Evans Engineering, Inc.

APPENDICES

**APPENDIX A
FIELD METHODS**

FIELD METHODS

Listed below are the standard field methods used during this project:

Soil Borings and Sampling

Soil borings were drilled using a ATV-mounted drilling rig equipped with 3/4-inch I.D. hollow stem augers. The borings for Piezometers P-1 through P-6 were drilled with the 3/4-inch I.D. hollow stem augers. The termination depth of each boring was selected based on encountering auger refusal or on indications of groundwater during drilling.

Soil samples were collected at 5-foot intervals starting at a depth of approximately 3.5 feet below the ground surface. The samples were collected in general accordance with ASTM D-1586 in several of the boreholes using a split-spoon sampler 18 inches long having an inside diameter of 1 3/4-inches. The sampler was initially seated 6 inches in the soil to penetrate any loose cuttings and then was driven an additional 12 inches with blows of a 140-pound hammer falling 30 inches. The number of hammer blows required to drive the sampler the final 12 inches was recorded and is designated the "penetration resistance". The penetration resistance, when properly evaluated, is an index to specific engineering properties of the soil (e.g., density). Soil test boring records showing soil descriptions (using the Unified Soil Classification System) and penetration resistances were completed for each of the borings and are included in Appendix B.

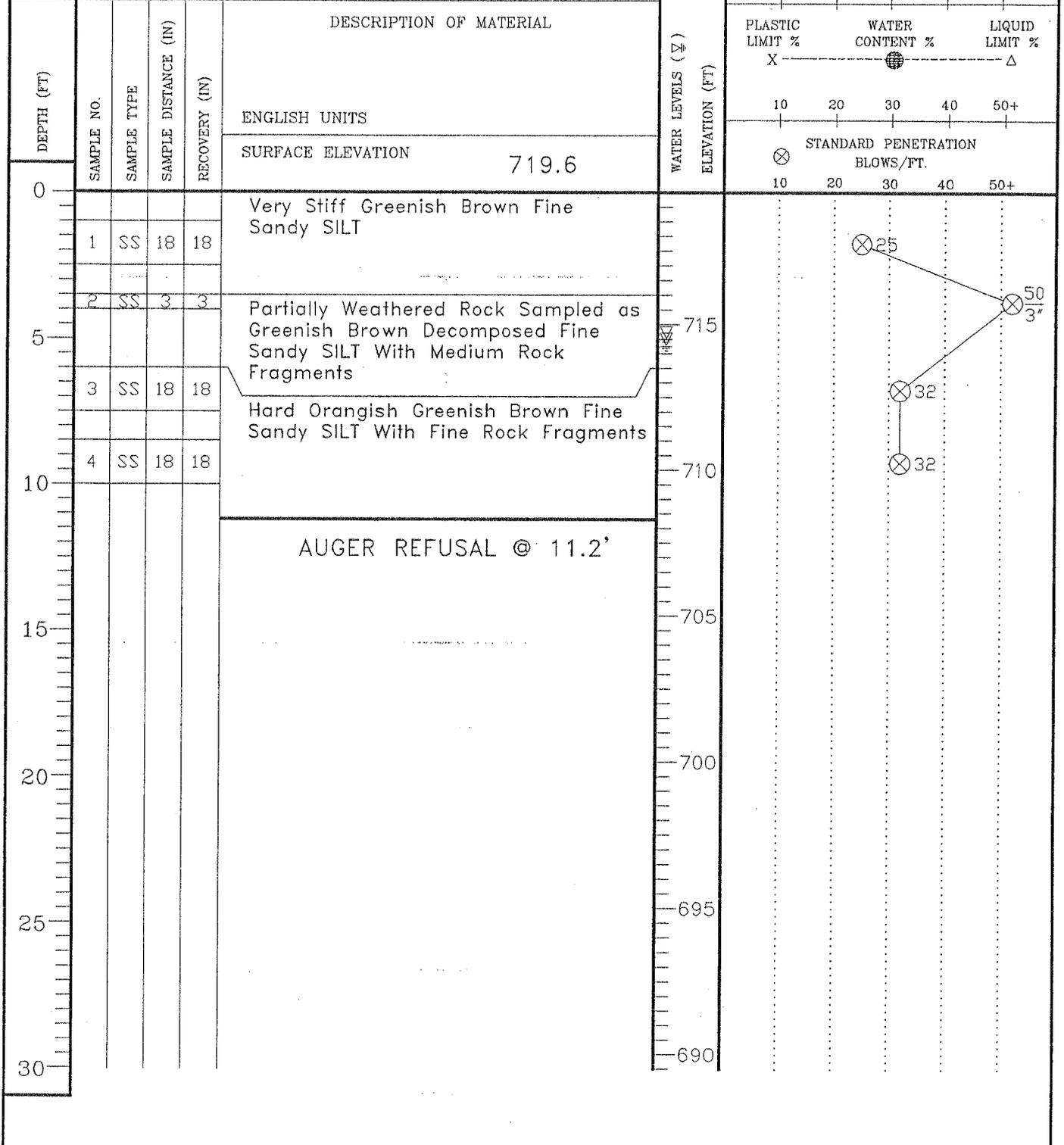
Piezometer Installation

The piezometers were installed in the existing borings drilled as discussed above. The borings for the piezometers were drilled to depths ranging from 8.9 feet below the ground surface (bgs) in boring P-2 to 20 feet bgs in boring P-4. Upon completion of the borings, a 10-foot section of 1-inch diameter hand slotted PVC pipe with an end cap was lowered to the bottom of the borings to intersect the water table. A solid section of 1-inch diameter PVC casing was placed above the slotted PVC and extended to a point just above the ground surface.

APPENDIX B
SOIL BORING LOGS AND PIEZOMETER CONSTRUCTION DIAGRAMS

CLIENT D & D GRADING, INC.	JOB # G-4422	BORING # P-1	SHEET 1 OF 1	
PROJECT NAME 1409 RANKIN MILL ROAD SITE	ARCHITECT-ENGINEER			

SITE LOCATION
GREENSBORO, NORTH CAROLINA

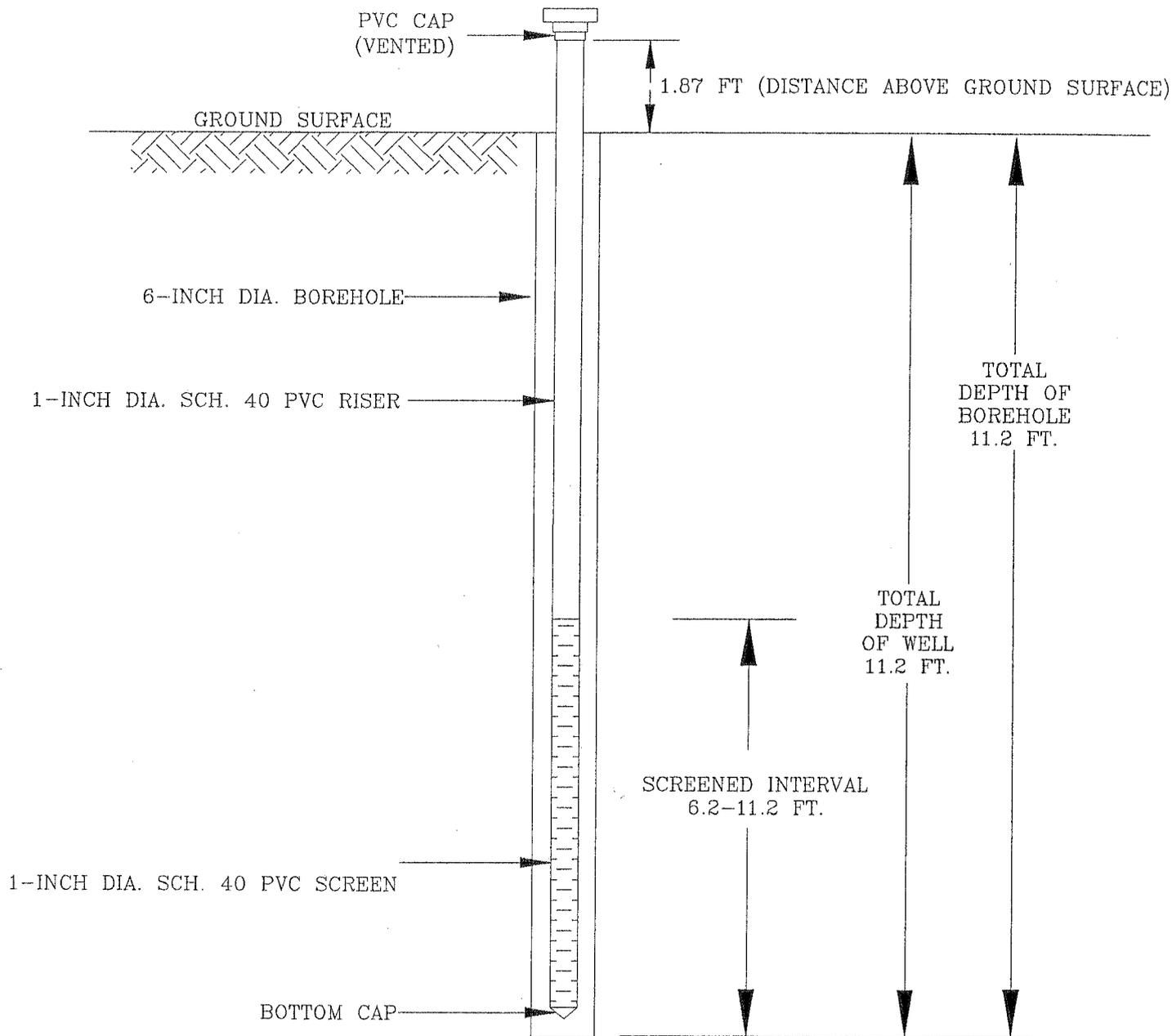


THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU THE TRANSITION MAY BE GRADUAL

WL DRY@TOB	WS OR WD	BORING STARTED	09-26-00	
WL 5.19'@24HRS		BORING COMPLETED	09-26-00	CAVE IN DEPTH @
WL 4.97'@7DAYS		RIG CME550 FOREMAN Ameridrill		DRILLING METHOD Auger

JOB NAME: 1409 RANKIN MILL ROAD SITE
WELL NUMBER: P-1
LOCATION: GREENSBORO, NORTH CAROLINA

JOB NUMBER: G-4422
GROUND SURFACE
ELEVATION*: 719.55'
TOP OF CASING (TOC)
ELEVATION*: 721.42'



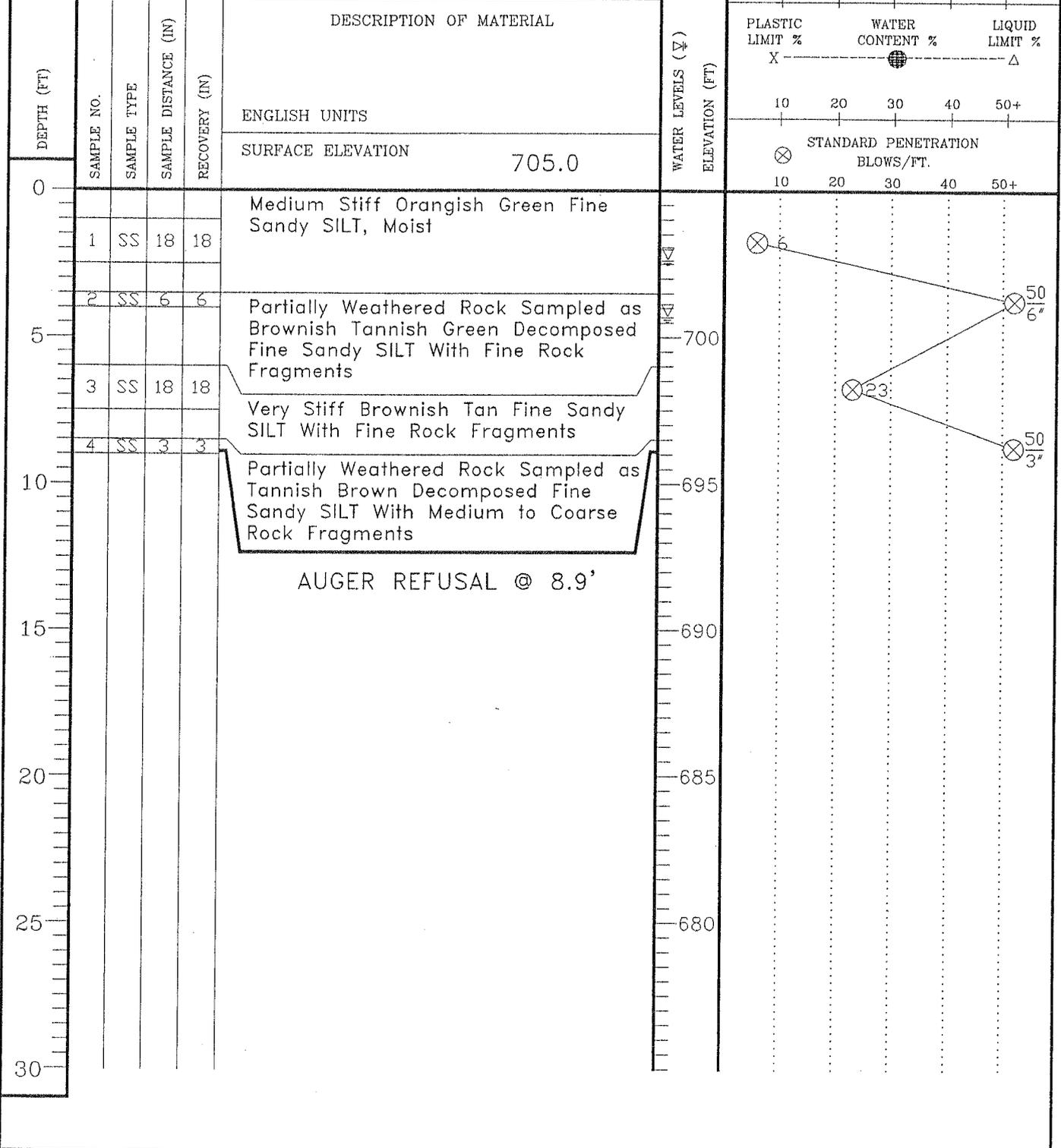
NOTE: ALL PVC JOINTS ARE
FLUSH THREADED

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PIEZOMETER
CONSTRUCTION DIAGRAM

CLIENT D & D GRADING, INC.	JOB # G-4422	BORING # P-2	SHEET 1 OF 1	
PROJECT NAME 1409 RANKIN MILL ROAD SITE	ARCHITECT-ENGINEER			

SITE LOCATION
GREENSBORO, NORTH CAROLINA

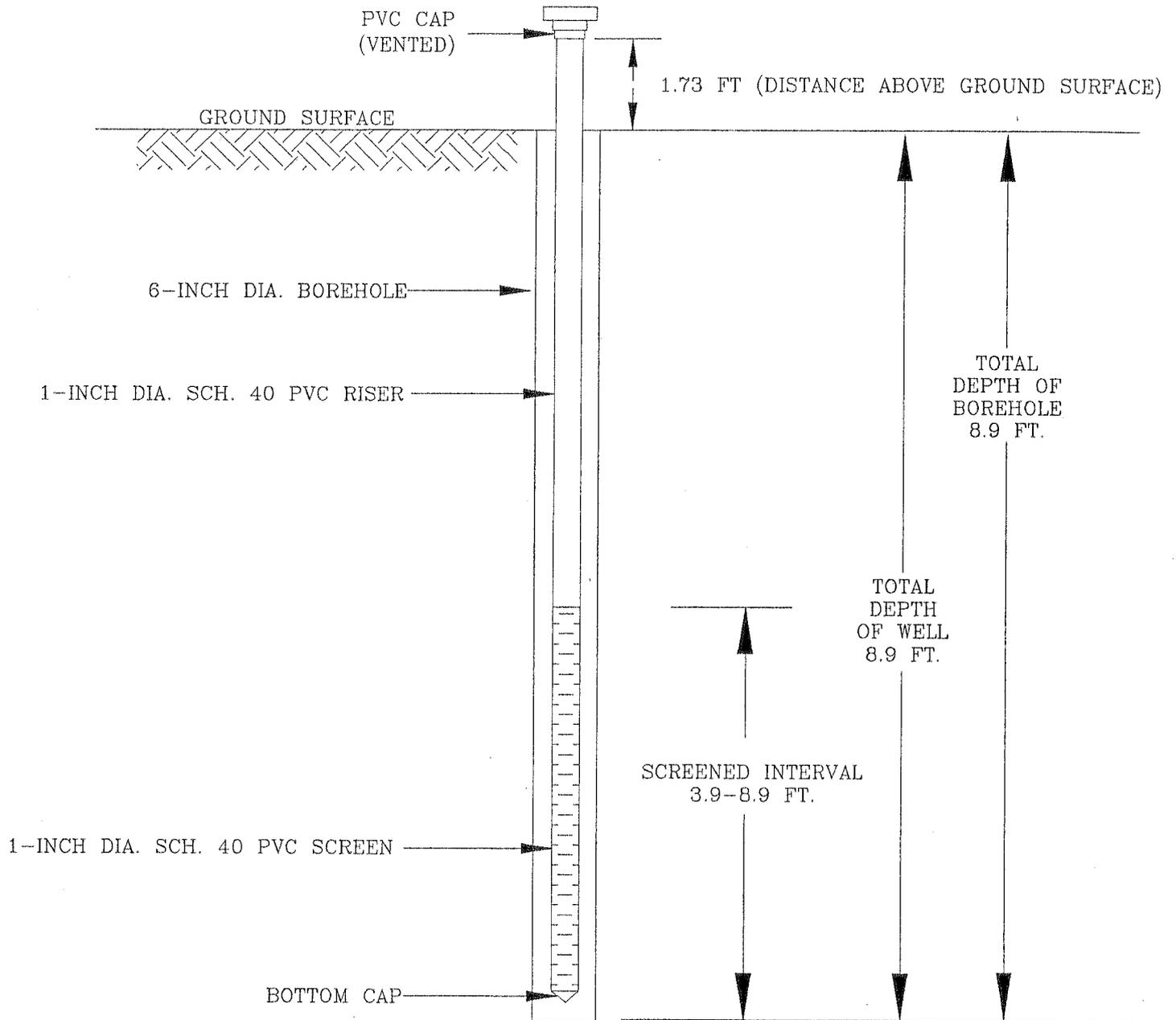


THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU THE TRANSITION MAY BE GRADUAL

WL DRY@TOB	WS OR WD	BORING STARTED	09-26-00	
WL 2.33'@24HRS		BORING COMPLETED	09-26-00	CAVE IN DEPTH @
WL 4.27'@7DAYS		RIG CME550 FOREMAN Ameridrill		DRILLING METHOD Auger

JOB NAME: 1409 RANKIN MILL ROAD SITE
WELL NUMBER: P-2
LOCATION: GREENSBORO, NORTH CAROLINA

JOB NUMBER: G-4422
GROUND SURFACE
ELEVATION*: 705.04'
TOP OF CASING (TOC)
ELEVATION*: 706.77'

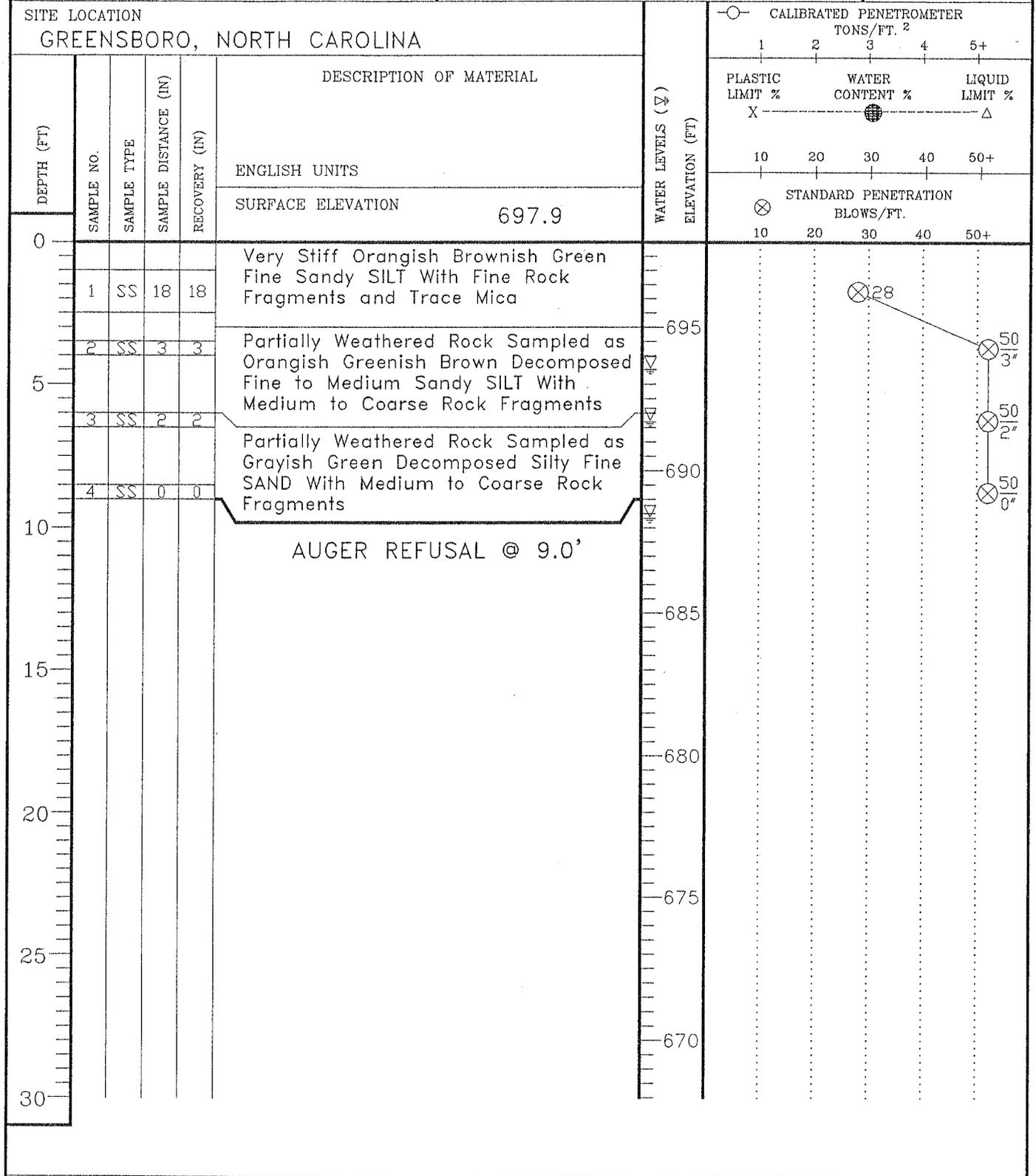


NOTE: ALL PVC JOINTS ARE
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CONSTRUCTION DIAGRAM

CLIENT D & D GRADING, INC.	JOB # G-4422	BORING # P-3	SHEET 1 OF 1	ECS LTD
PROJECT NAME 1409 RANKIN MILL ROAD SITE	ARCHITECT-ENGINEER			



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU THE TRANSITION MAY BE GRADUAL

WL 9.61'@TOB	WS OR WD	BORING STARTED	09-26-00	
WL 4.43'@24HRS		BORING COMPLETED	09-26-00	CAVE IN DEPTH @
WL 6.24'@7DAYS		RIG CME550 FOREMAN Ameridrill		DRILLING METHOD Auger

JOB NAME: 1409 RANKIN MILL ROAD SITE

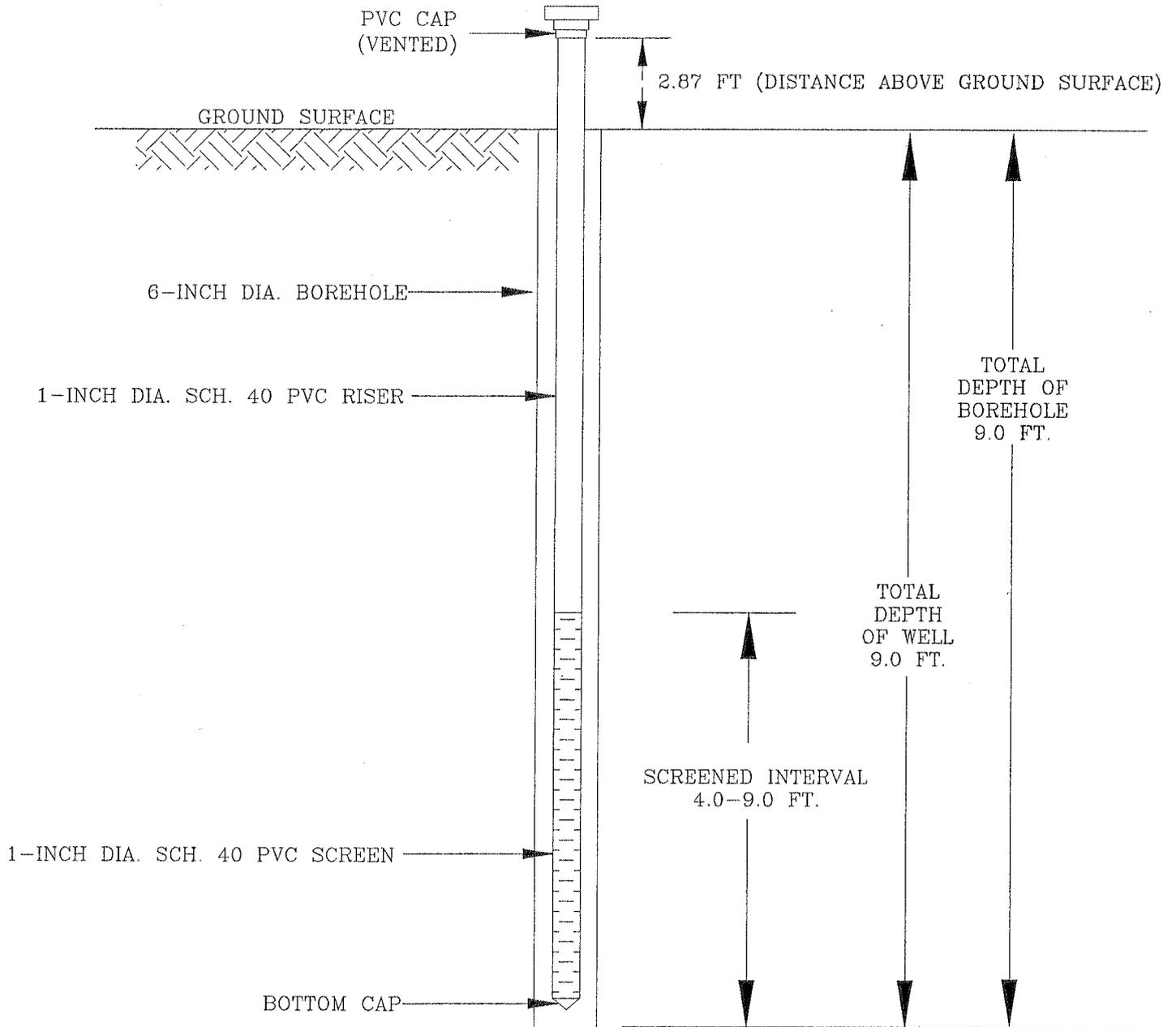
JOB NUMBER: G-4422

WELL NUMBER: P-3

GROUND SURFACE
ELEVATION*: 697.89'

LOCATION: GREENSBORO, NORTH CAROLINA

TOP OF CASING (TOC)
ELEVATION*: 700.76'



NOTE: ALL PVC JOINTS ARE
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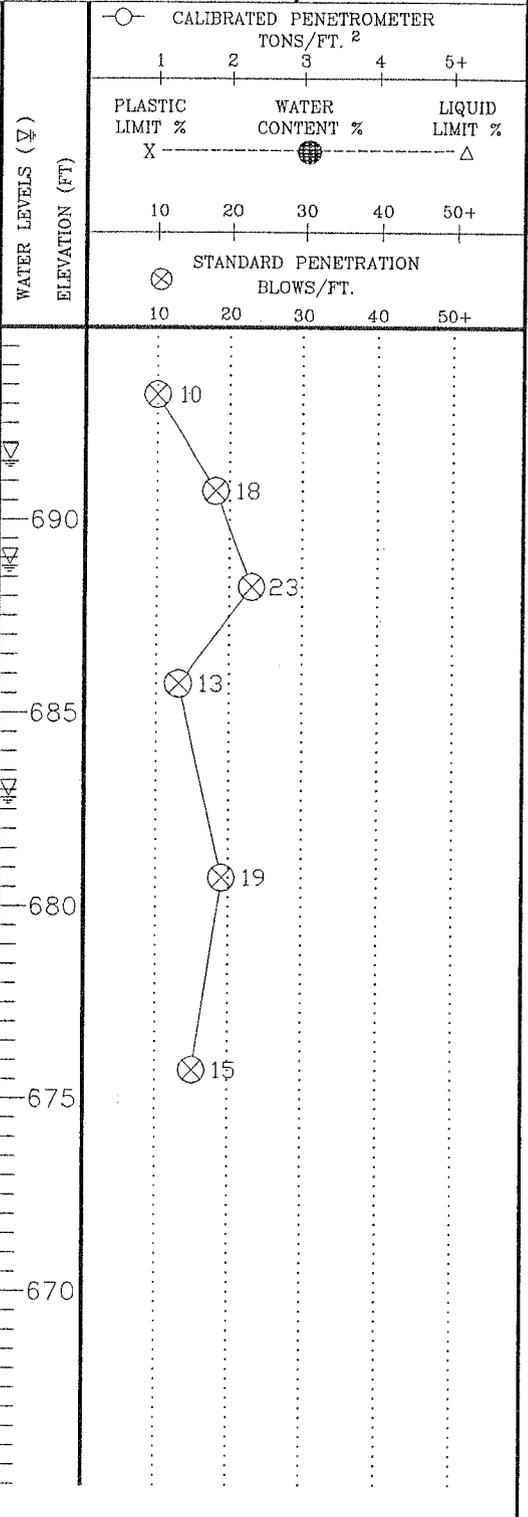
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CLIENT D & D GRADING, INC.	JOB # G-4422	BORING # P-4	SHEET 1 OF 1	ECS LTD
PROJECT NAME 1409 RANKIN MILL ROAD SITE	ARCHITECT-ENGINEER			

SITE LOCATION
GREENSBORO, NORTH CAROLINA

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS (▽) ELEVATION (FT)
					ENGLISH UNITS	
					SURFACE ELEVATION	695.2
0	1	SS	18	18	Stiff Orangish Tan Fine Sandy SILT, Moist	
	2	SS	18	18		
5	3	SS	18	18		
	4	SS	18	18	Stiff Orangish Brownish Green Fine Sandy SILT, Moist	685
10						
	5	SS	18	18	Very Stiff Orangish Brown Fine Sandy SILT	680
15						
	6	SS	18	18	Stiff Orangish Brownish Green Fine Sandy SILT	675
20	END OF BORING @ 20.0'					
25						
30						



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU THE TRANSITION MAY BE GRADUAL

WL 12.15'@TOB	WS OR WD	BORING STARTED	09-26-00
WL 3.43'@24HRS		BORING COMPLETED	09-26-00
WL 6.16'@7DAYS		RIG CME550 FOREMAN Ameridrill	DRILLING METHOD Auger

JOB NAME: 1409 RANKIN MILL ROAD SITE

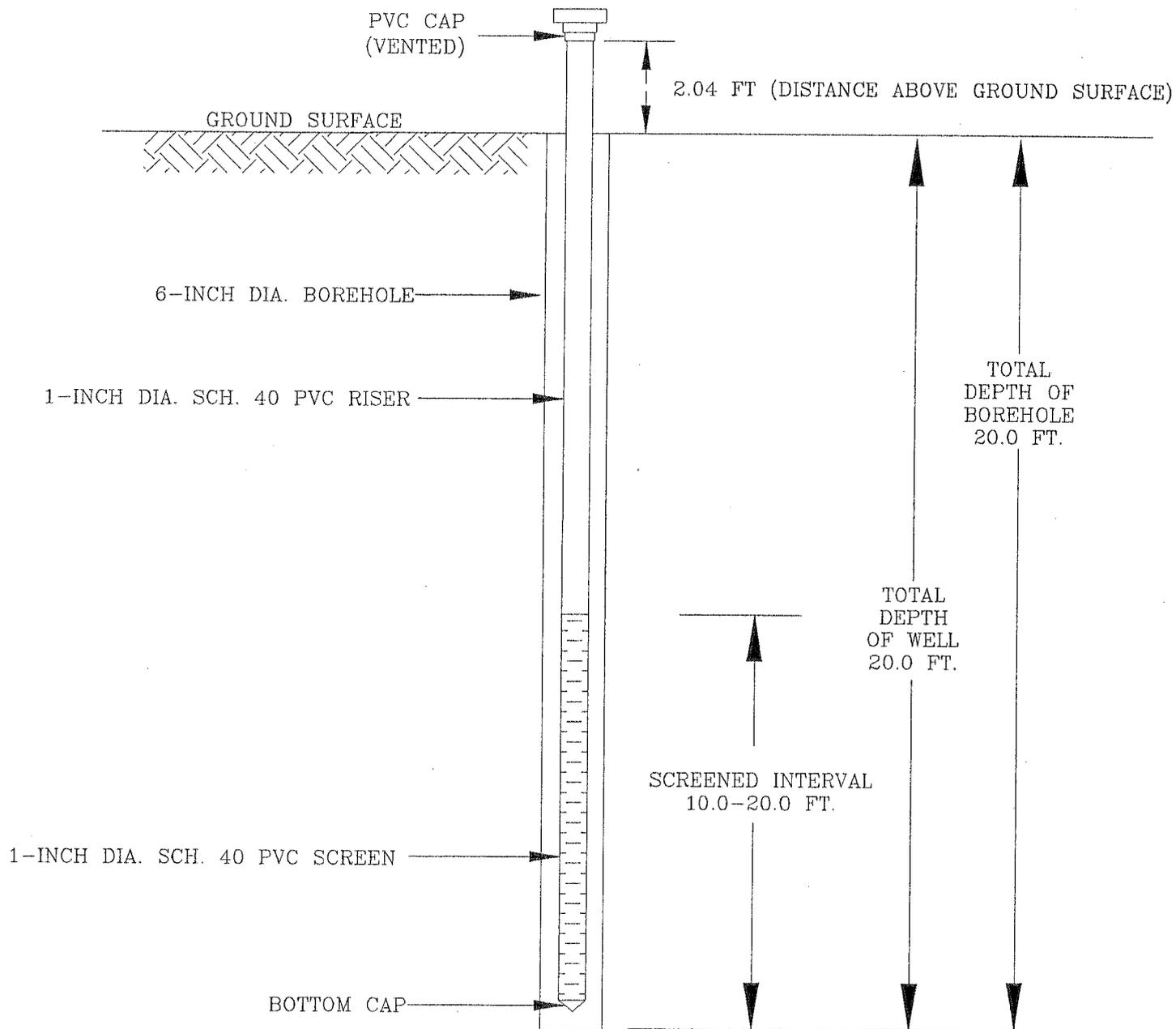
JOB NUMBER: G-4422

WELL NUMBER: P-4

GROUND SURFACE
ELEVATION*: 695.24'

LOCATION: GREENSBORO, NORTH CAROLINA

TOP OF CASING (TOC)
ELEVATION*: 697.28'



NOTE: ALL PVC JOINTS ARE
FLUSH THREADED

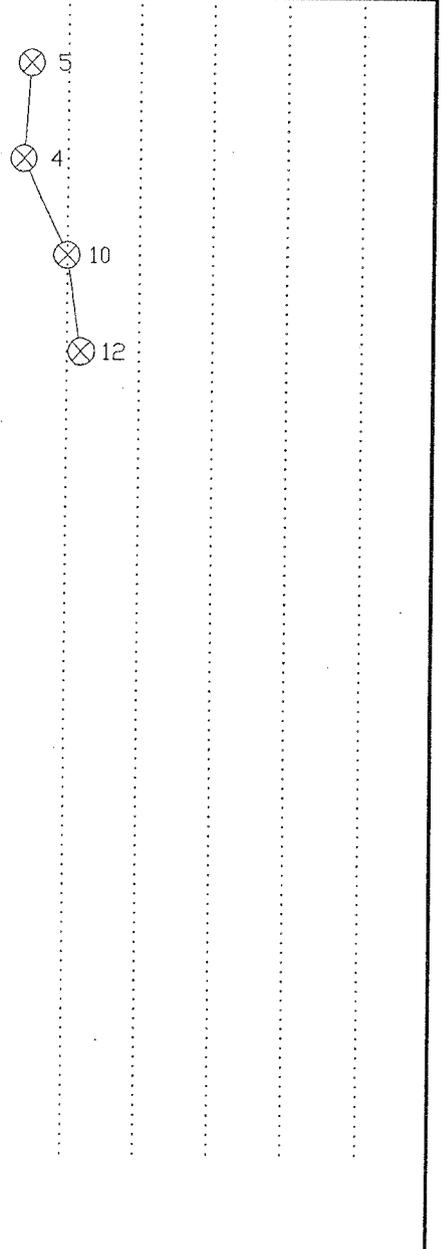
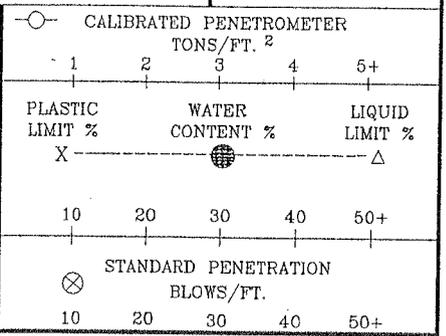
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CLIENT D & D GRADING, INC.	JOB # G-4422	BORING # P-5	SHEET 1 OF 1	
PROJECT NAME 1409 RANKIN MILL ROAD SITE	ARCHITECT-ENGINEER			

SITE LOCATION
GREENSBORO, NORTH CAROLINA

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DISTANCE (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS (▽) ELEVATION (FT)	CALIBRATED PENETROMETER TONS/FT. ²		
							1	2	3
					ENGLISH UNITS				
					SURFACE ELEVATION	694.1			
0					Medium Stiff Orange Brown Fine Sandy Clayey SILT, Moist				
1	1	SS	18	18					
5					Soft to Stiff Greenish Orange Fine Sandy SILT, Moist	690			
2	2	SS	18	18					
3	3	SS	18	18					
10					Stiff Greenish Brown SILT, Moist	685			
4	4	SS	18	18					
END OF BORING @ 10.0'									
15						680			
20						675			
25						670			
30						665			



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU THE TRANSITION MAY BE GRADUAL

WL 8.49' @ TOB	WS OR WD	BORING STARTED	09-26-00	
WL 5.72' @ 24HRS		BORING COMPLETED	09-26-00	CAVE IN DEPTH @
WL 7.65' @ 7DAYS		RIG CME550 FOREMAN Ameridrill		DRILLING METHOD Auger

JOB NAME: 1409 RANKIN MILL ROAD SITE

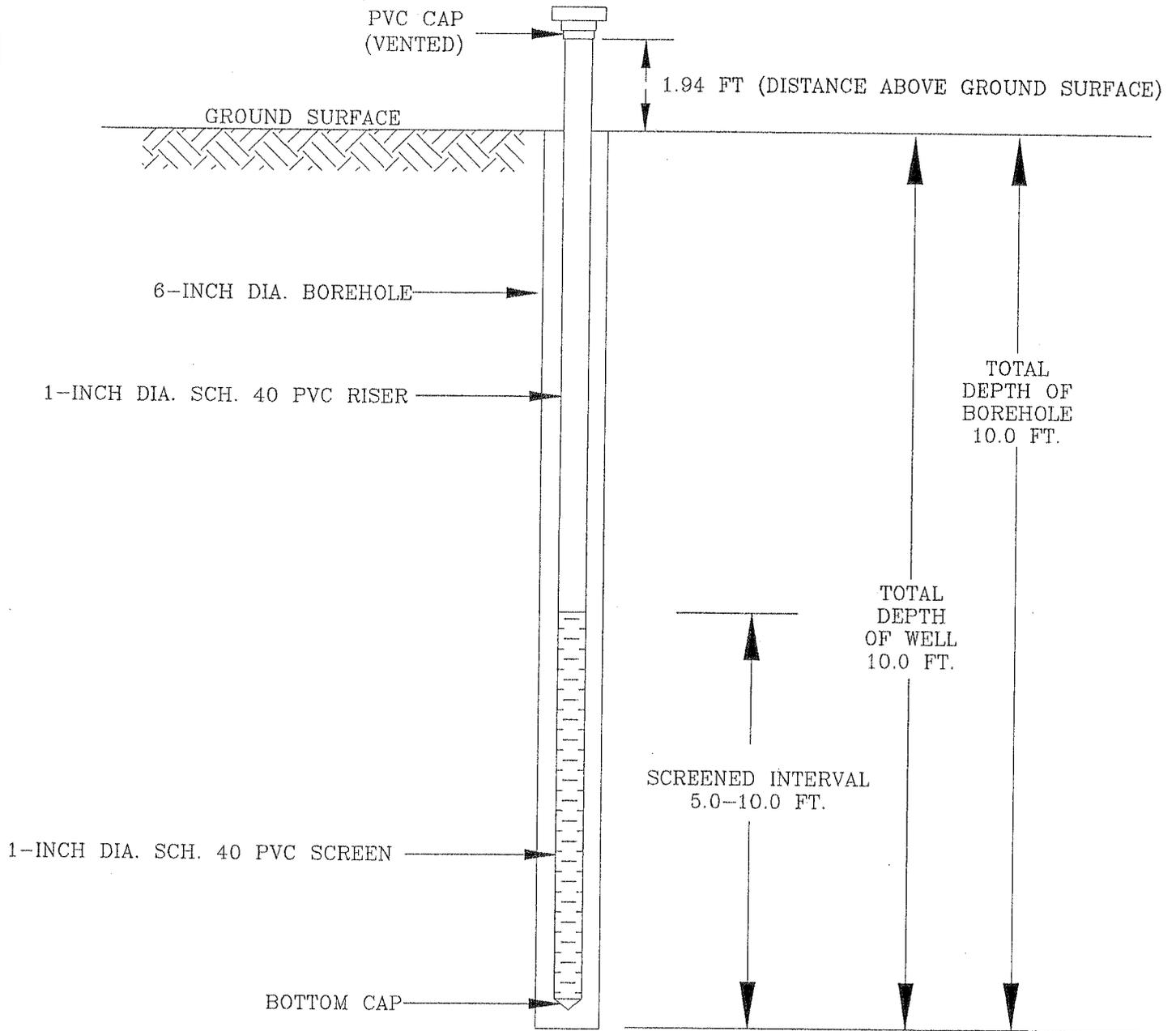
JOB NUMBER: G-4422

WELL NUMBER: P-5

GROUND SURFACE
ELEVATION*: 694.06'

LOCATION: GREENSBORO, NORTH CAROLINA

TOP OF CASING (TOC)
ELEVATION*: 696.00'



NOTE: ALL PVC JOINTS ARE
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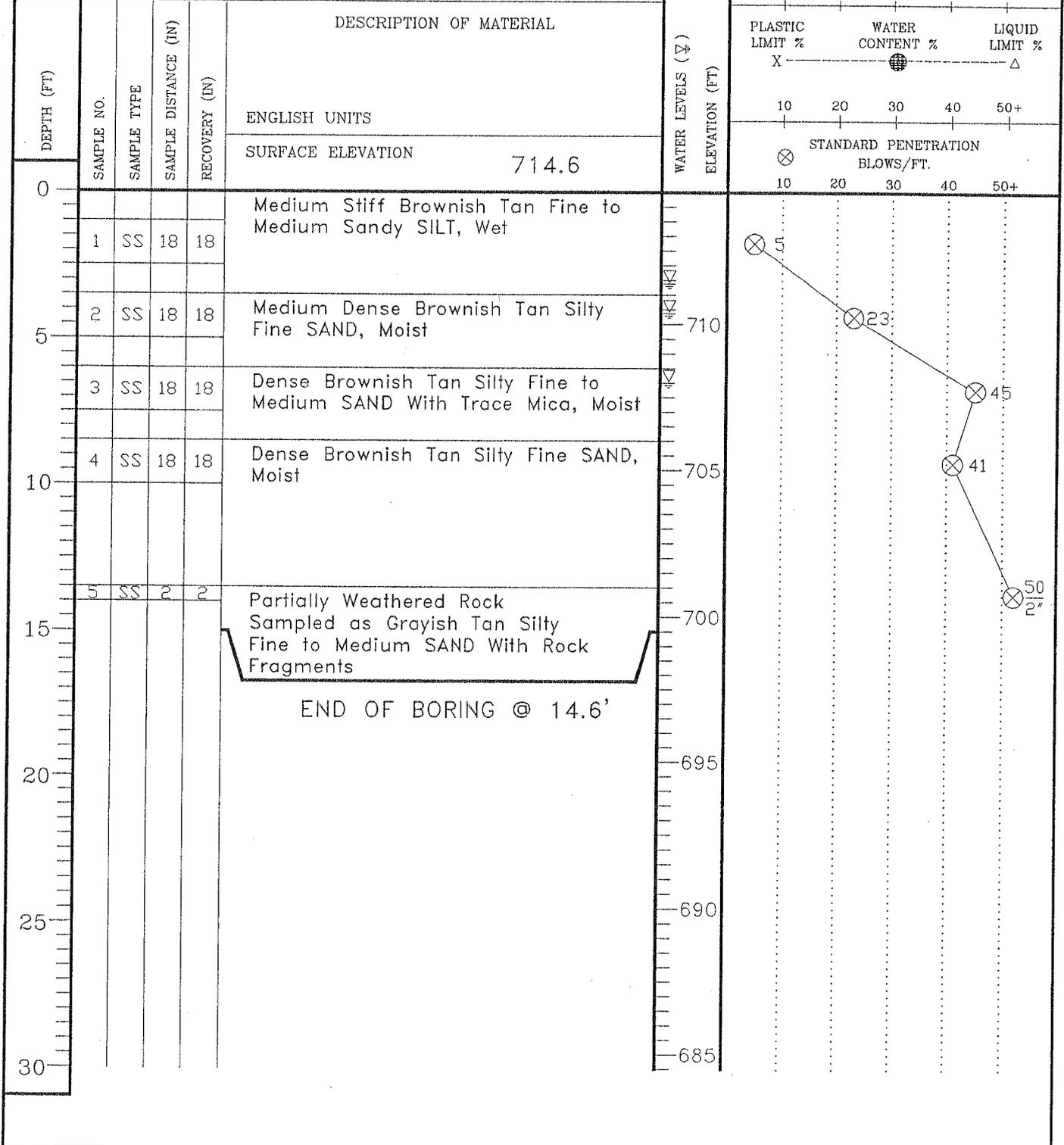
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PROJECT NAME 1409 RANKIN MILL ROAD SITE	ARCHITECT-ENGINEER			

SITE LOCATION
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THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU THE TRANSITION MAY BE GRADUAL

WL 6.45'@TOB	WS OR WD	BORING STARTED 09-26-00	
WL 3.07'@24HRS		BORING COMPLETED 09-26-00	CAVE IN DEPTH @
WL 4.08'@7DAYS		RIG CME550 FOREMAN Ameridrill	DRILLING METHOD Auger

JOB NAME: 1409 RANKIN MILL ROAD SITE

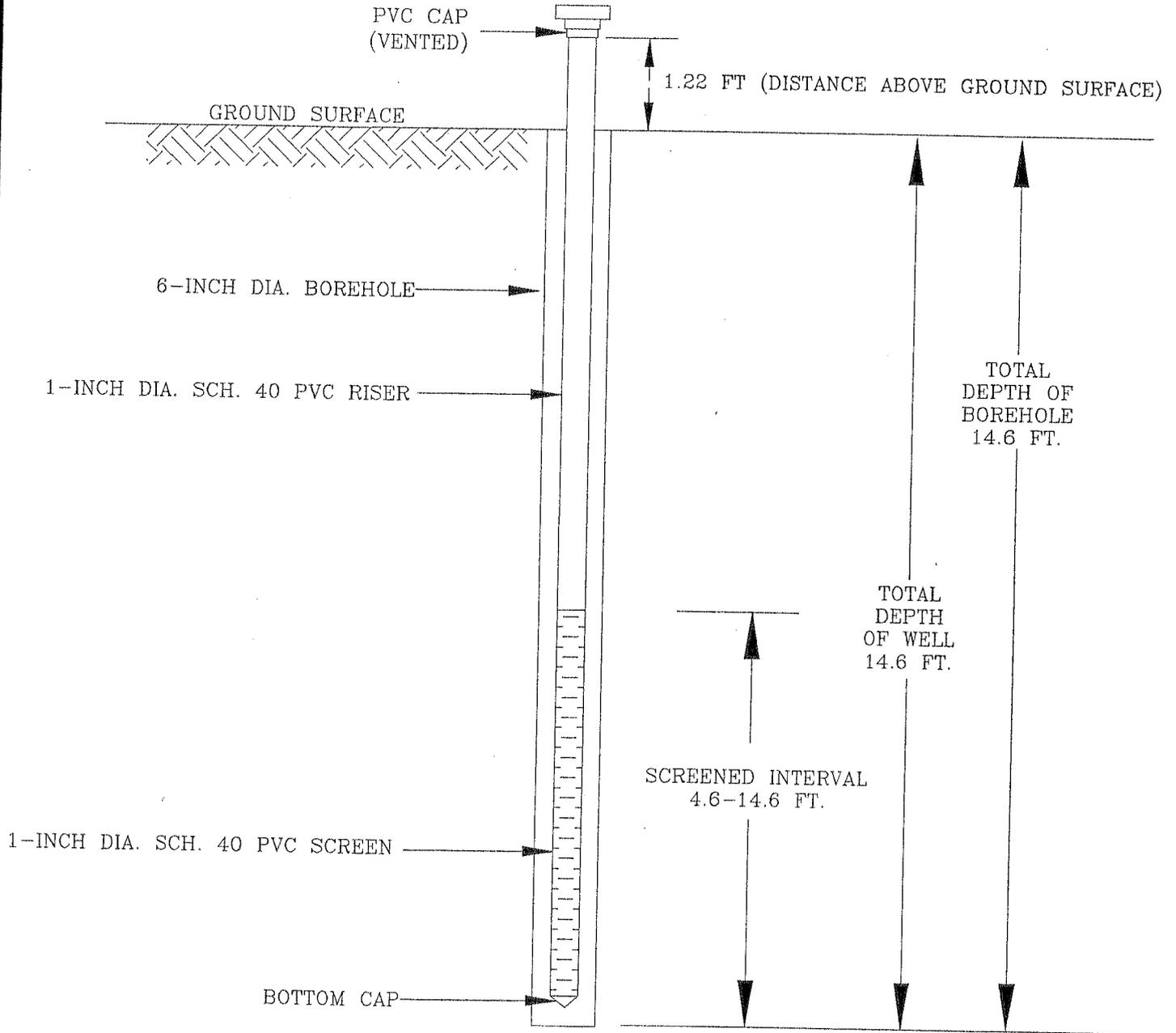
JOB NUMBER: G-4422

WELL NUMBER: P-6

GROUND SURFACE
ELEVATION*: 714.59'

LOCATION: GREENSBORO, NORTH CAROLINA

TOP OF CASING (TOC)
ELEVATION*: 715.81'



NOTE: ALL PVC JOINTS ARE
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